
VICTORIAN *E*NTOMOLOGIST

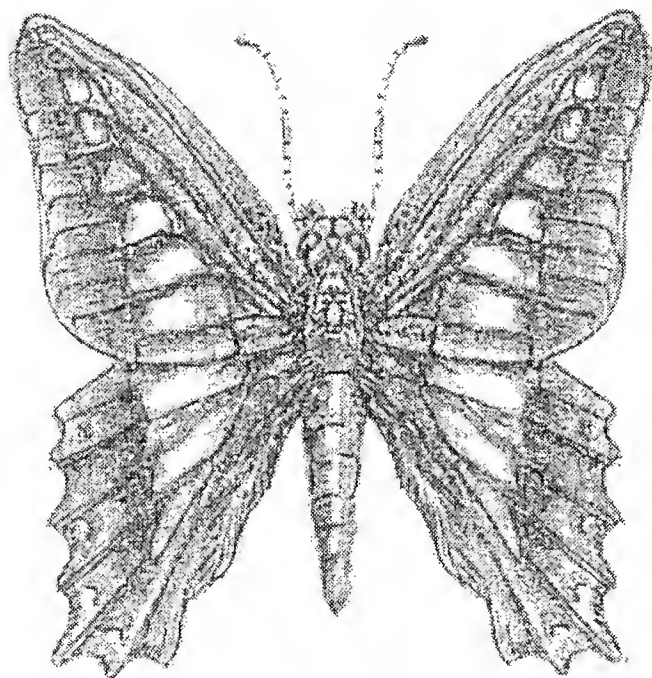


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News Bulletin of The Entomological Society of Victoria Inc.

THE ENTOMOLOGICAL SOCIETY OF VICTORIA (Inc)

MEMBERSHIP

Any person with an interest in entomology shall be eligible for Ordinary membership. Members of the Society include professional, amateur and student entomologists, all of whom receive the Society's News Bulletin, the Victorian Entomologist.

OBJECTIVES

The aims of the Society are:

- (a) to stimulate the scientific study and discussion of all aspects of entomology,
- (b) to gather, disseminate and record knowledge of all identifiable Australian insect species,
- (c) to compile a comprehensive list of all Victorian insect species,
- (d) to bring together in a congenial but scientific atmosphere all persons interested in entomology.

MEETINGS

The Society's meetings are held at La Trobe University, 2nd Floor, Room 2.29, 215 Franklin Street, Melbourne (Opposite the Queen Victoria Market) Melway reference Map 2F B1 at 8 p.m. on the third Friday of even months, with the possible exception of the December meeting which may be held earlier. Lectures by guest speakers or members are a feature of many meetings at which there is ample opportunity for informal discussion between members with similar interests. Forums are also conducted by members on their own particular interest so that others may participate in discussions.

SUBSCRIPTIONS

Ordinary Member	\$20.00
Country Member	\$16.00 (Over 100 km from GPO Melbourne)
Student Member	\$12.00
Associate Member	\$ 5.00 (No News Bulletin)

No additional fee is payable for overseas posting by surface mail of the news bulletin. Associate Members, resident at the same address as, and being immediate relatives of an ordinary Member, do not automatically receive the Society's publications but in all other respects rank as ordinary Members.

Cover design by Alan Hyman.

Cover illustration of the Blue Triangle butterfly, *Graphium sarpedon* L. by Rhonda Millen.

MINUTES OF THE ANNUAL GENERAL MEETING, 14 APRIL, 2000

The Treasurer, Ian Endersby, opened the meeting at 8.12 pm.

Present: I. Endersby, R. MacPherson, C. Pcterson, D. Stewart, J. Tinetti, R. Vagi.

Apologies: D. Dobrosak, A&E Farnworth, A. Kellehear

Minutes:

Minutes of the 16 April 1999 Annual General Meeting [*Vic. Ent.* 29: (3): 41-2] were accepted (MacPherson/Tinetti).

Treasurer's Report:

The annual accounts were detailed in the April issue [*Vic. Ent.* 30(2): 19-20]. The Treasurer advised that there were no abnormal items of expenditure during the year so a slight surplus resulted. The report was received (Endersby/Stewart).

Editor's Report:

The editor thanked all contributors and Susan Dobrosak who arranges the mailout of the *Victorian Entomologist*.

Committee Reports:

Neither the ENTRECS or Conservation Committees were active during the year. The Le Souëf Award Committee had recommended H. Bollam for the 1999 Award.

Nomination for Council Positions:

As no written nominations had been received the Public Officer announced that the current office bearers had agreed to continue in their positions and J. Tinetti was willing to become Secretary.

President:	A. Kellehear
Immediate Past President:	P. Carwardine
Vice President:	vacant
Secretary:	J. Tinetti
Treasurer:	I. Endersby
Editor:	D. Dobrosak
Public Officer:	I. Endersby
Councillors:	R. MacPherson, D. Stewart.

Committee Members:

Members were invited to join the ENTRECS and Conservation Committees.

A vote of thanks for the contributions of A. Kellehear, D. Dobrosak and I. Endersby^{*} during the year was carried (Stewart/MacPherson).

The meeting was closed at 8.20 pm

MINUTES OF THE GENERAL MEETING, 14 APRIL, 2000

The Treasurer, Ian Endersby, opened the meeting at 8.20 pm.

Present: P. Carwardine, I. Endersby, R. MacPherson, C. Peterson, D. Stewart, J. Tinetti, R. Vagi.

Apologies: D. Dobrosak, A&E Farnworth, A. Kellehear

Minutes: Minutes of the 18 February 2000 General Meeting [*Vic. Ent.* 30: (2): 17] were accepted (Peterson/Stewart).

Treasurer's Report: The Treasurer presented the financial statement.

Account Balances: General	\$5,765
Le Souëf Account	\$3,383

Membership: 69 Members and Associates have paid for 2000 but 35 still remain unfinancial.

General Business:

- **Membership** J. Stoner and B. Walkley were elected to membership.
- **World Environment Day 2000** The society has nominated the Sword-grass Brown Butterfly Project in the Community Project section of the *United Nations Association in Australia* World Environment Day 2000 awards.

Speaker:

I. Endersby presented a talk on Insect Conservation, pointing out the enormous number of insect species compared with vertebrate taxa and suggesting that conservation effort and funding was biased strongly towards a few vertebrate and plant species. Insects seem to have an image problem, perhaps due to the damage caused by pests, through adverse public opinion caused by fear and loathing, or because of lack of knowledge. Invertebrates fill many important ecological roles but there are serious barriers to their conservation due to the large number of taxa, many of which are undescribed, difficulty of identification, sampling problems, unknown life histories and ecology, and poor knowledge of their distribution. Techniques developed to manage small populations of vertebrates or plants are not easily applied to invertebrates because of the difficulties in estimating population parameters for modelling, the additional complications of metapopulation concepts, the general impracticality of captive breeding, and the fact that conservation genetics is still in its infancy.

Insect conservation projects need to raise awareness through "flagship species"; to conduct ecological and taxonomic research; to nominate endangered taxa for listing and the development of action plans; population and distribution surveys; reservation and management of habitat; and the determination of bioindicators to measure environmental health.

The speaker emphasised that, while there were a number of ways in which the public could assist in raising the profile of insect conservation, the role of members would best be aimed at providing scientific input by making and publishing observations on insect distribution, behaviour and ecology. He illustrated this with numerous examples from his own studies.

Field Observations:

P. Carwardine reported the sighting of *Eurema smilax* during an excursion to Mt. Donna Buang and I. Endersby had noted the same species ovipositing on a *Cassia* plant on two recent separate occasions at Montmorency.

The meeting was closed at 9.50 pm.

MINUTES OF THE COUNCIL MEETING, 18 MAY, 2000

Present: P. Carwardine, D. Dobrosak, I. Endersby, D. Stewart, A. Kellehear, J. Tinetti.

Apologies: R. MacPherson.

Minutes: Acceptance of minutes of last council meeting was deferred.

Treasurer's Report: The Treasurer reported that the account balances are:

General Account: \$ 3442; Le Souëf Account \$ 3383

- A summary of membership details was provided:

Financial 86 (metropolitan 44, country 31, student 3, life 3, associate 3)

Non-financial 22 (metropolitan 10, country 11, student 1)

It remains unclear whether the Society will need an ABN when GST is introduced. The Treasurer will apply if necessary.

(Accepted. I. Endersby/D. Stewart)

Editor's Report: Papers for the next edition of *Victorian Entomologist* are in hand by contributions are requested urgently for the later editions in the year.

Correspondence:

- W. Faithfull and Wife: Resignation of membership with donation of year's subscription.
- Community Biodiversity Network: Promotion of activities for Biodiversity Month (September 2000) and invitation to participate. This was not taken up.

General Business:

- Representative Councillor to Australian Entomological Society: A. Morton had accepted this role but has moved to the country. I. Endersby will continue with his current promotional and publicity activities through *Myrmecia*.
- Involvement in Activities to assist the Society: Future editions of the news bulletin will include a 'boxed' Help wanted section. This will publicise our needs, and mention opportunities for members to further support the Society by contributing in their areas of special interest. Watch for it!
- Insect Collecting Pamphlet: The committee reviewed a draft of the pamphlet and decided to proceed with the project.
 - a. The pamphlet will be published in the news bulletin and therefore accessible by anyone from the State Library of Victoria.
 - b. The possibility of a printed publication will be further considered after consultation with possible users and feedback from members regarding revisions.
 - c. The pamphlet will be made available to be downloaded and printed via the Society's web site.

A vote of thanks to the author, Ian Endersby, was passed (A. Kellehear/D. Stewart)

Oviposition Behavior in *Signeta flammeata* (Butler) (Lepidoptera: Hesperiiidae: Trapezitinae)

Kelvyn L. Dunn
15 Yackatoon Road, Upper Beaconsfield, Vic. 3808

Summary

An observation of oviposition in *Signeta flammeata* (Butler) is documented and discussed. An associated observation of this species and another Trapezitine, *Dispar compacta* (Butler) feeding at seepages are also mentioned in passing.

Oviposition observations

Locality: Rowville, Victoria. Exact observation site: in Heany Park, on a hilltop near the boundary fence of Churchill National Park at ca. 160m asl.

Habitat: dry, eucalypt open-forest with understorey of soft grasses.

Date: 15 Feb. 1996, time: 2:30pm ESST (= 1330h EST).

Weather: sunny and warm. (temp 25°C)

A female of *Signeta flammeata* was fluttering in a searching pattern about 8-10 centimetres above low clumps of soft grasses growing in filtered sunlight on the forest floor. For a minute or two she fluttered back and forth over an area of about a metre square before selecting an oviposition site. She then quickly settled on a sunlit, dry, eucalypt leaf lying about 5 centimetres from the base of a clump of soft grass. With wings closed above her body, she manoeuvred her abdomen under the leaf edge and deposited one pale bluish egg. Apart from abdominal movements during egg extrusion the female made no crawling or other movements after alighting. Immediately the egg was laid the female flew off in a direct manner. She made no attempt to oviposit a second time in the general area.

Biological notes

The collected egg later faded in color to a creamy-white, and a rusty brown lateral pattern - like a lacy girdle ring, and similarly colored micropyle area developed soon after. The latter pattern development is also a variable feature of eggs of *Trapezites* (Atkins 1999), but is not confined to the Trapezitinae (Lyons 1999).

After removing the egg, I immediately penciled the above observations (in point form) in my field notebook, and then combed the area over which the female had flown to determine the intended larval food plant. Only a single species of grass appeared to be growing within a metre's radius of the leaf. A sample of the grass and its seed head was taken from the clump beside the leaf. It was probably the introduced grass, *Anthoxanthum odoratum* Linn. (Poaceae). Although not a known host of this or any other Australian butterfly, it was perhaps the intended larval food.

The female skipper was seen at very close range so there was no doubt as to her identification.

S. flammeata is abundant in Heany Park and also in the contiguous Churchill National Park, where, as a matter of passing interest, later the same day at 4:50pm (ESST) a further female was encountered. This female was feeding at dampened dirt (possibly by urine) along a walking trail. Within the trapezitinae, a non-floral feeding observation such as this seems rather uncommon in my experience, at least in temperate Australia. I can't recall any others involving females, but years earlier in suburban Dandenong, on 15 Feb. 1992, I found a male *Dispar compacta* drinking at a grassy puddle of raw sewage which had overflowed from blocked

plumbing. In neither example did I note any anal excretions whilst imbibing, but in both these cases the skippers were perhaps seeking sodium concentrated by evaporation.

Discussion

Based on this single encounter, oviposition behavior in *S. flammeata* seemed rapid and uncomplicated. There was no contact chemoreception for final host identification. This presumably occurs in trapezitines which oviposit on the host, or make tactile contact with the host prior to laying. The female seemingly located the host by visual cues, unless some form of chemoreception occurs during flight.

Oviposition on debris or substrate near the host plant is a known behavior in this and some other trapezitines (Atkins 1988, 1999, Braby 1993, Dunn 1993a,b). Since the tiny larvae are forced to locate their own food, it is more likely to have evolved amongst opportunistic polyphages, or those which utilise superabundant hosts such as herbs, sedges and grasses. Indeed, this strategy would be advantageous in rare situations where the larval host has evolved a direct plant defence, such as a hypersensitive reaction which can necrose butterfly eggs (see Shapiro & DeVay 1987).

Oviposition on substrates away from the host may thwart predators and parasitoids (but cf. Dunn 1993a) which use cues such as larval saliva, frass and plant damage to hunt for uneclosed eggs. Moreover, assuming it was intentional, deposition on the unexposed surface of the fallen leaf would reduce exposure to possibly harmful levels of summer UV radiation, hide the egg from other predators, or shelter it from heavy rains which could dislodge and, without its anchor, bury the egg in silt.

Egg laying and associated behavior has been recorded in varying detail for several other trapezitine skippers. These include *Proeidosia polysema* (Atkins 1973), *Hesperilla flavescens* (Atkins & Dunn 1986), *H. donnyisa* (Fisher 1978), *H. picta* (Rainbow 1907), *H. malindeva* (Dunn & Manskie 1988), *Trapezites symnomus* (Atkins 1999, Braby 1993 and references therein), *T. lulea* (Fisher 1978), and *Toxidia rietmanni* (Atkins 1988, Dunn 1993b).

Finally, some butterflies which feed at vertebrate excreta, perspiration, wet sand, and rocks may seek sodium to mature reproductive accessory glands. Little is known about potassium/sodium imbalances in adults, and in particular, how such elemental demands may affect male reproductive development (Sands 1999).

Acknowledgements

Nigel Quick kindly examined the grass samples and seed heads and gave the probable identification.

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Australian Journal of Entomology Volume 39, Part 2, 2000

The Australian Entomological Society publishes the *Australian Journal of Entomology* quarterly. The Entomological Society of Victoria is an affiliated society and will, in future, publish the contents of the Journal for the wider interest of its members.

SYSTEMATICS

DC Morris, LA Mound and MP Schwarz: *Advenathrips inquilinus*: A new genus and species of social parasites (Thysanoptera: Phlaeothripidae). pp. 53-57.

MS Harvey and JM Waldo: Review of the spider genus *Yoroa* Baert (Araneae: Theridiidae: Hadrotarsinae) pp. 8-61

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M Carver and DS Kent: *Essigella californica* (Essig) and *Eulachnus thunbergii* Wilson (Hemiptera: Aphididae: Lachninae) on *Pinus* in south-eastern Australia pp. 62-69

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KW Sutherst, IJ Wilson and IM Cook: Predation on the cattle tick, *Boophilus microplus* (Canestrini) (Acarina: Ixodidae), in three Australian pastures. pp. 70-77

BEHAVIOUR AND PHYSIOLOGY

S Tabatabai, C Chervin, A Hamilton and A Hoffmann: Sensitivity of pupae of Light Brown Apple Moth, *Epiphyas postvittata* (Walker) (Lepidoptera: Tortricidae), to combinations of abiotic stress. pp. 78-82.

DG James, B Vogele, RJ Faulder and CJ Moore: Efficacy of multi-species pheromone lures for *Carpophilus davidsoni* Dobson and *Carpophilus mutilatus* Erichson (Coleoptera: Nitidulidae). pp. 83-85.

PEST MANAGEMENT

GA Heron and J Rophail: Potential insecticides for control of *Oligonychus ilicis* (McGregor) (Acari: Tetranychidae), a new threat to Australian horticulture. pp. 86-88

BIOLOGICAL CONTROL

GP Donnelly: Biology and host specificity of *Rhinacia calliocrates* Hering (Hemiptera: Miridae) and its introduction and establishment as a biological control agent of *Parkinsonia aculeata* L. (Caesalpinaceae) in Australia. pp. 89-94

Dragonflies Soar To New Heights

On Sunday 27 February 2000, a well known, but so far little regarded group of insects in Australia, really took off for the first time when Deniss Reeves was unanimously elected as the inaugural president of the Australian Dragonfly Society.

"As part of the new state wide NatureSearch program, an enthusiastic group of budding odonatists gathered at the the Moggill Centre of the Queensland Parks and Wildlife Service to soak up the long years of knowledge and superb slide presentations of these stunningly colourful and seasonally active insects presented by two of their most devoted fans.

Considerable weight was added to the occasion by the presence of NatureSearch consultant and former Minister for Environment and Heritage Pat Comben, Wildlife Preservation Society of Queensland's president Adrian Caneris and Marie Carmody, lecturer in Environmental Sciences at the Moreton Institute of TAFE."

Retired pharmacist and author of *Dragonflies and Damselflies* in the phenomenally successful WILDLIFE of GREATER BRISBANE, Mr Reeves was ably supported by the Manager of NatureSearch, Ric Natrass who had arranged the historical meeting and which later led to the establishment of the first national society for this important group of ancient insects.

"In 'The Australian Dragonflies', we have one of the best reference works of any insect group in Australia, but despite this our dragonflies and damselflies have been held back for lack of useable common names," said Mr Reeves.

"It is very difficult to get the community enthusiastic about a common, brilliant ruby-red dragonfly that is known only as *Orthetrum villosovitatum*" he said. "Seven or eight years ago, Ric Natrass was talking about Ruby Spindletails, Black-tipped Powderblues and Golden Mottlewings and while I'd be cautious about firm proposals without a reasonable consultative process, I think he's very much on the right track."

Dragonflies are very obvious in the warmer months, especially around bodies of water and it is true that almost all of them have only scientific names to identify them by, at the moment. However, judging from the enthusiasm of the Moggill meeting, their relative obscurity is likely to be a thing of the past. Overseas, especially in Europe, the Americas and Japan, dragonflies and damselflies have an enormous professional and community following. Most have common names and very active societies concerned for their survival.

Now, in Australia, the Odonata have come of age. There are three immediate aims of the newly established Australian Dragonfly Society.

"The first is to establish an ethics committee which will include ordinary members of the community and which will ensure that the society's conduct is acceptable to the broader community; the second is to establish a naming committee which will consult widely to publish common names to promote general interest in dragonflies; thirdly I hope that the field efforts of society members will support the aims of NatureSearch in Queensland and other state conservation authorities to develop a better understanding of the conservation status of Australia's Odonata"

President Deniss M. Reeves denissreeves@uq.net.au,
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Treasurer Nigel Fechner nigel.fechner@env.qld.gov.au

Further details can be obtained by
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Nomenclatural Changes Affecting Victorian Dragonflies.

Ian Endersby

56 Looker Road, Montmorency, Vic. 3094

A checklist of the Dragonflies of Victoria was published in the *Victorian Entomologist* by Hutchinson (1975), based on the distribution data of Watson (1974). Since that time a number of additions to the Victorian fauna have been made and there have been nomenclatural changes. A full catalogue is given in Endersby (2000). This paper summarises the higher level taxonomic changes as they affect the Victorian fauna.

Major phylogenetic studies have been undertaken recently, notably in Germany, America and Australia, and Hawking & Theischinger (1999) provided a new Australian checklist recognising these works, particularly the familial and higher level classification of Bechly (<http://members.aol.com/odonatadat/phylogeny/system.htm>). None of the new analyses is universally accepted but the framework provided by Hawking & Theischinger is a valuable summary.

Epiproctophora

Traditionally three suborders of Odonata have been recognised: Zygoptera, Anisoptera, and the Anisozygoptera with extant species only in Japan and Nepal. Bechly (*op. cit.*) renamed the Anisozygoptera to Epiophlebiidae and combined it with the Anisoptera to form a new suborder Epiproctophora

Protoneuridae/Isostictidae

In the Zygoptera (damselflies) the only change is that the two sub-families, Protoneurinae (containing *Nososticta* Hagen) and Isostictinae, have been raised to family level.

Austropetaliidae

Victoria's only representative of the family Austropetaliidae is *Austropetalia tonyana* Theischinger. This genus was moved from the Aeshnidae to the Neopetaliidae and subsequently to the Austropetaliidae which contains the Australasian species.

Aeshnidae

One of Bechly's (*op. cit.*) revisions was to remove a number of genera from the family Aeshnidae to a new family Telephlebiidae. The effect for Victorian species was to retain only *Aeshna brevistyla* (Rambur) and *Hemianax papuensis* (Burmeister) in Aeshnidae. The split is consistent with the larval epiproct being concave at the tip for Aeshnidae but pointed in Telephlebiidae.

Corduliidae

Major changes have occurred with the division of the former family Corduliidae. Of the new families, those found in Victoria are the Synthemistidae, Austrocorduliidae, Cordulephidae, and Hemicorduliidae. These groupings are not inconsistent with the field appearance of the relevant species.

Victoria has 74 species of Odonata and the classification of them at family level is now:

	Victorian Species
Order Odonata	(74)
Suborder Zygoptera	(26)
Family Hemiphysbiidae	1
Family Synlestidae	1
Family Lestidae	7
Family Megapodagrionidae	4
Family Protoneuridae	1
Family Isostictidae	2
Family Coenagrionidae	8
Family Diphlebiidae (formerly Amphipterygidae)	2
Suborder Epiproctophora (formerly Anisoptera)	(48)
Family Austropetaliidae (formerly part of Neopetaliidae)	1
Family Telephlebiidae (formerly part of Aeshnidae)	12
Family Aeshnidae	2
Family Gomphidae	8
Family Synthemistidae (formerly part of Corduliidae)	7
Family Austrocorduliidae (formerly part of Corduliidae)	2
Family Cordulephoridae (formerly part of Corduliidae)	1
Family Hemicorduliidae (formerly part of Corduliidae)	3
Family Libellulidae	12

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HELP WANTED

- Articles or papers for forthcoming issues of *Victorian Entomologist*. Please send your papers to the Hon. Editor.
- Ideas for excursion locations. Please contact a Councillor if you have any ideas for an excursion location. Alternatively bring your suggestions to the next general meeting.

Migration of *Belenois java teutonia* (Lepidoptera: Pieridae) Near Armidale, New South Wales, November 1975

Ian Faithfull, 2 Jacana Drive, Carrum Downs, Victoria, 3201

Introduction

Adult caper whites, *Belenois java teutonia* (Fabricius) (Lepidoptera: Pieridae), undertake spectacular annual migrations in eastern Australia. The characteristics of these population movements are poorly documented and the significance of migration in the species' biology remains obscure (McCubbin 1971, Common and Waterhouse 1984). Brief details of a massive migration near Armidale, New South Wales, in November 1975 are here recorded.

Observations

A large scale population movement was observed at Kellys Plains, 6.5 km south of Armidale, between 21 and 27 November 1975. Flight was to the north or north-northeast. On 21 November the butterfly was very common. Between 22 and 27 November enormous numbers were seen between 9 am and 8 pm summer time steadily moving north. The migration peaked on 23 and 24 November when the immense number of individuals and the vertical distribution of their flight made a count impossible. A few butterflies were flying at an estimated height of 100 metres, so were visible only as small dark spots, however the density of individuals was greatest at altitudes of a few metres. Migration rate counts were not made at any time but a retrospective estimate is 10 per metre per minute at peak density, with the migration front being at least a kilometre in width.

Discussion

Smithers (1983) summarised data on known migrations of all Australian Pieridae except the "many records" for *B. java*, which were to be dealt with in "a separate paper" (p. 47). This paper has not yet been published. Dingle *et al.* (1999) analysed some of the literature and concluded that spring migrations are possibly predominantly to the north or east in Queensland, and to the south or west in New South Wales and Victoria, with no directional flight information available for other seasons (i.e. December to August).

This report provides a further addition to the many published observations on *B. java* migration. These need to be synthesised with other biological data and analysed to gain a more coherent picture of migration patterns in this species.

Williams (1965) stated that *Belenois* spp. (as *Anaphaeis*) in Africa have been reported migrating at heights up to 30 m and that *Danaus plexippus* L. (Lepidoptera: Nymphalidae) frequently migrates at heights of 100 m or more.

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Recent Articles Of Interest

Compiled by Ian Faithfull

A catty way to ward off cockroaches. *The Age* 25 August 1999 p. 17 (from the *Blatimore Sun*, USA). A chemical called nepetalactone, isolated from the plant catnip, *Nepeta* sp., by Iowa State University scientists, is 100 times more effective than DEET insect repellent. Allergy to cockroach excrement is thought to be a leading cause of asthma in children in the USA so a cockroach repellent could prove popular. Catnip is well known for its intoxicating effect on cats.

Nematodes take on the battle of the bugs. Malcolm Robertson, *Farming Ahead with the Kondinin Group* No. 94, October 1999. CSIRO was the first organisation in the world to employ entomophagous nematodes in insect control when *Deladenus siricidicola*, a species that sterilises the sirex wood wasp, was introduced to Australia in 1972. Since then CSIRO has commercialised nematodes for use against black vine weevil and currant borer moth. Most entomophagous nematodes are species of *Heterorhabditis* and *Steinernema*. Juvenile nematodes penetrate the body of their host and then release a bacterium which kills it and converts the body tissue into suitable nematode food. Selected strains of nematodes are suitable for a wide range of insect pests. Methods of mass rearing them, applying them in suitable formulations that prevent drying out, and improving nematode 'shelf-life' have been developed.

Mystery crazy ants found near Gove. *NAQS News* (Northern Australia Quarantine Strategy), Issue 9, Dec. 1999. The origin of a colony of *Anoplolepis gracilipes* in the Northern Territory is unknown. The crazy ant was possibly imported on mining equipment in the 1950s or 60s, arrived with World War II aircraft or accompanied Macassan traders. It is a crop pest and has been established on Christmas Is. for 50 years where it threatens the breeding of the red land crab, *Gecardoidea natalis*.

Bumblebee plan alarms experts. Greg Roberts, *The Age*, 4 Jan. 2000. A plan by NSW Agriculture to introduce the European *Bombus terrestris* to mainland Australia for buzz-pollination of greenhouse tomatoes could result in an environmental disaster. The bee could dramatically improve pollination of weeds and would compete directly with native bees and flower-feeding birds. The bee is already present in Tasmania and could reach the mainland by island hopping.

Cricketers rue wrecking ravens. *Frankston Independent*, 1 Feb. 2000 p.16. Ravens numbering about 70 tearing up the ground at Bruce Park "in quest of a mysterious grub" said to be a "witchetty grub". Cricketers want the Frankston City Council to completely resoil the ground.

Oriental fruit moth threat to stone fruit. Paul Sellars, *Weekly Times*, 9 Feb. 2000, p.30. *Cydia molesta* (Tortricidae) has caused losses of 30% in two peach blocks at Shepparton East and Ardmona. Normally controlled with pheromone traps and broad-spectrum insecticides, the moth has reemerged as a pest, evidently by migrating from untreated orchards and possibly by development of pesticide resistance. Wide-area mating-disruption is now the only strategy.

Locust plague set to descend. Fiona Myers, *Weekly Times*, 8 March 2000, p.21. Widespread rainfall and flooding in western NSW have created ideal conditions for locusts with large numbers reported near Mildura and in the Riverina.

Aerial treatment of the migratory locust *Locusta migratoria* (L.) (Orthoptera: Acrididae) with *Metarhizium anisopliae* (Deuteromycotina: Hyphomycetes) in Australia. D.M, Hunter, R.J.Milner, J.C.Scanlan and P.A.Spurgin. *Crop Protection* 18(1999), 699-704. Aerial treatment with the bacterial preparation resulted in less than 10% survival in open areas with rapid decline after the first week and few swarms being formed. The bacterial strain is a general grasshopper killer but represent a big improvement on current treatments which involve broad-spectrum insecticides.

Fruit pest problem demands action. Paul Sellars, *Weekly Times*, 2 Feb 2000, p. 15. 1999-2000 is the first time since 1989 that three fruit-growing areas of Victoria have been affected by Queensland fruit fly outbreaks, possibly due to changing weather conditions and the large traffic volumes passing through fruit growing regions. Travellers from interstate may need education to prevent fruit fly importation.

Australian Story, ABC Television, 4 May 2000. A profile of a family with a passion for insects, the Hasenpusch's of Innisfail, Qld. Introduced by Geoff Monteith. Jack (the father), Sue (the mother) and Paul ("Bug Boy") Hasenpusch have run an insect farm for 12 years in a block of rainforest, researching life histories (especially of Coleoptera), selling specimens to scientific institutions and schools, putting on public displays and promoting a better understanding of insects in Australia. According to Sue, there is "no one lucrative avenue that brings in the big dollar". They have identified 10,000 species of insects on their property, are intent on environmentally sustainable development, and are not going to clear their land.

Readers are invited to forward items suitable for inclusion in "Recent Articles of Interest" to the compiler at 2 Jacana Drive, Carrum Downs, Vic. 3201.

New Book Available

An Illustrated Guide to the Parasitic Wasps Associated with Citrus Scale Insects and Mealybugs in Australia

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The Society welcomes contributions of articles, papers or notes pertaining to any aspect of entomology for publication in this Bulletin. Contributions are not restricted to members but are invited from all who have an interest. Material submitted should be responsible and original. The Editor reserves the right to have articles refereed. Statements and opinions expressed are the responsibility of the respective authors and do not necessarily reflect the policies of the Society.

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Contributions may be typed on A4 paper or *preferably* sent to the Hon. editor on an IBM formatted disk in *Microsoft Word for Windows*, *WordPerfect* or any recognised word processor software with an enclosed hard copy. Contributions may also be E-mailed to Internet address: dobrosak@mira.net

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DIARY OF COMING EVENTS

Friday 16 June General Meeting

Presidential Address: Allan Kellehear will present a talk titled:
"Then: Insects in Science Fiction"

At the Society's meeting room at La Trobe University, 2nd Floor, , Room 2.29, 215 Franklin
Street, Melbourne (Opposite the Queen Victoria Market near Queen Street)
Melway reference Map 2F B1

Friday 15 July Council Meeting

Friday 18 August General Meeting

Daniel Dobrosak will present a talk on the
"Life History of Wattle Flower-Feeding Paropsine Beetles "

Scientific names contained in this document are *not* intended for permanent scientific record, and are not published for the purposes of nomenclature within the meaning of the *International Code of Zoological Nomenclature*, Article 8(b). Contributions may be refereed, and authors alone are responsible for the views expressed.